

CLAIM AMENDMENTS

1 – 17 (cancelled)

18. (Currently amended) ~~The timing control mechanism of claim 16,~~ A timing control mechanism for use with a fuel injector having an intensifier plunger and an intensifier chamber fluidly coupled to a needle valve chamber by a high pressure fuel passage, comprising:
a timing control valve in fluid communication with the high pressure fuel passage and being shiftable between a blocked disposition in which fuel flow in the high pressure fuel passage is substantially blocked and an unblocked disposition in which fuel flow in the high pressure fuel passage is substantially unrestricted, the timing control valve providing an alternative fuel flow path in fluid communication with the intensifier chamber when the timing control valve is in the blocked disposition.

19. (original) The timing control mechanism of claim 18, the alternative fuel flow path accommodating compressive stroking motion of the intensifier plunger when the timing control valve is in the blocked disposition.

20. (original) The timing control mechanism of claim 18, the alternative fuel flow path being throttled.

21. (original) The timing control mechanism of claim 18, the alternative fuel flow path being in flow communication with a fuel volume at relatively low pressure.

22. (Currently amended) The timing control mechanism of claim ~~16~~18, the timing control valve having a blocking land, the blocking land having an actuation surface, the actuation surface being exposable to the pressure of the fuel in the high pressure fuel passage,

23. (original) The timing control mechanism of claim 22, the blocking land actuation surface being substantially continuously exposed to the pressure of the fuel in the high pressure fuel passage.

24. (original) The timing control mechanism of claim 22, the blocking land substantially blocking fuel flow in the high pressure fuel passage when the timing control valve is in the blocked disposition.

25. (Currently amended) The timing control mechanism of claim ~~18~~16, the timing control valve having an actuation land, the actuation land having an actuation surface, the actuation surface being exposable to the pressure of the fuel in the high pressure fuel passage.

26. (original) The timing control mechanism of claim 25, the actuation land actuation surface having a greater area than a blocking land actuation surface.

27. (original) The timing control mechanism of claim 25, fuel flow to the actuation land actuation surface being throttled through a throttling orifice.

28. (Currently amended) ~~The timing control mechanism of claim 16,~~ A timing control mechanism for use with a fuel injector having an intensifier plunger and an intensifier chamber fluidly coupled to a needle valve chamber by a high pressure fuel passage, comprising:
a timing control valve in fluid communication with the high pressure fuel passage and being shiftable between a blocked disposition in which fuel flow in the high pressure fuel passage is substantially blocked and an unblocked disposition in which fuel flow in the high pressure fuel passage is substantially unrestricted, the timing control valve having a spring, the spring acting on both a first shiftable component and a second opposed shiftable component.

29. (original) The timing control mechanism of claim 28, the spring acting simultaneously to bias a first valve in the unblocked disposition and to bias a second valve in a closed disposition.

30. (original) The timing control mechanism of claim 29, the spring being disposed in a variable volume actuation chamber.

31. (original) The timing control mechanism of claim 30, opening the second valve acting to fluidly vent the variable volume actuation chamber.

32. (original) The timing control mechanism of claim 31, a solenoid and solenoid armature acting on the second valve in opposition to the bias of the spring.

33. (original) The timing control mechanism of claim 31, selective venting of the actuation chamber affecting opposed hydraulic forces acting on the first valve, causing the first valve to selectively shift between the blocked and unblocked dispositions.

34. (Currently amended) The timing control mechanism of claim ~~18~~¹⁶ being hydraulically actuated and electronically controlled.

35. (original) The timing control mechanism of claim 34, the hydraulic actuation being effected by fuel pressure.

36 – 37 (cancelled)

38. (Currently amended) ~~The fuel injector of claim 36, A fuel injector comprising:~~
an intensifier plunger and an intensifier chamber fluidly coupled to a
needle valve chamber by a high pressure fuel passage, and
a timing control valve in fluid communication with the high pressure fuel passage
and being shiftable between a blocked disposition in which fuel flow in the high pressure
fuel passage is substantially blocked and an unblocked disposition in which fuel flow in
the high pressure fuel passage is substantially unrestricted, the timing control valve

providing an alternative fuel flow path in fluid communication with the intensifier chamber when the timing control valve is in the blocked disposition.

39. (original) The fuel injector of claim 38, the alternative fuel flow path accommodating compressive stroking motion of the intensifier plunger when the timing control valve is in the blocked disposition.

40. (original) The fuel injector of claim 38, the alternative fuel flow path being throttled.

41. (original) The fuel injector of claim 38, the alternative fuel flow path being in flow communication with a fuel volume at relatively low pressure.

42. (Currently amended) The fuel injector of claim ~~38~~36, the timing control valve having a blocking land, the blocking land having an actuation surface, the actuation surface being exposable to the pressure of the fuel in the high pressure fuel passage.

43. (original) The fuel injector of claim 42, the blocking land actuation surface being substantially continuously exposed to the pressure of the fuel in the high pressure fuel passage.

44. (original) The fuel injector of claim 42, the blocking land substantially blocking fuel flow in the high pressure fuel passage when the timing control valve is in the blocked disposition.

45. (Currently amended) The fuel injector of claim ~~38~~36, the timing control valve having an actuation land, the actuation land having an actuation surface, the actuation surface being exposable to the pressure of the fuel in the high pressure fuel passage.

46. (original) The fuel injector of claim 45, the actuation land actuation surface having a greater area than a blocking land actuation surface.

47. (original) The fuel injector of claim 45, fuel flow to the actuation land actuation surface being throttled through a throttling orifice.

48. (Currently amended) ~~The fuel injector of claim 36~~ A fuel injector comprising:
an intensifier plunger and an intensifier chamber fluidly coupled to a
needle valve chamber by a high pressure fuel passage, and
a timing control valve in fluid communication with the high pressure fuel passage
and being shiftable between a blocked disposition in which fuel flow in the high pressure
fuel passage is substantially blocked and an unblocked disposition in which fuel flow in
the high pressure fuel passage is substantially unrestricted, the timing control valve having a spring, the spring acting on both a first shiftable component and a second opposed shiftable component.

49. (original) The fuel injector of claim 48, the spring acting simultaneously to bias a first valve in the unblocked disposition and to bias a second valve in a closed disposition.

50. (original) The fuel injector of claim 49, the spring being disposed in a variable volume actuation chamber.

51. (original) The fuel injector of claim 50, opening the second valve acting to fluidly vent the variable volume actuation chamber.

52. (original) The fuel injector of claim 51, a solenoid and solenoid armature acting on the second valve in opposition to the bias of the spring.

53. (original) The fuel injector of claim 51, selective venting of the actuation chamber affecting opposed hydraulic forces acting on the first valve, causing the first valve to selectively shift between the blocked and unblocked dispositions.

54. (Currently amended) The fuel injector of claim 48 ~~56~~ being hydraulically actuated and electronically controlled.

55. (original) The fuel injector of claim 54, the hydraulic actuation being effected by fuel pressure.